Regulations of the GG Aerial Competition

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Organized by Franciszek Leja State School in Grodzisko Górne

Aviation elements in robotics and coding- programing and practical use of drones
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Contents

1 General

1.1 General provisions

1. This document sets out the detailed rules for the GG Aerial drone programming competition. The competition will take place on April 19-20 in the building of the Rzeszów University of Technology in conjunction with the Curatorial Competition GGRobot 2023.
2. This document presents the general specification of the drones participating in the competition. The detailed specification of the drones will be checked during the preparatory days for the GG Aerial competition. Preparatory days will take place on April 17-18, 2023 in the School Complex of Franciszek Leja State School in Grodzisko Górne.
3. The organizer is not responsible for any losses or damage caused by the actions of the competitors, the equipment (drone) it controls or the viewers.
4. Both during the preparation for the competition and the competition itself, the teacher - an instructor with permission to control drones will supervise all the preparations.
5. The competition will take place according to the previously given schedule.

1.2 Equipment requirements

- Allowed Batteries - 6 S (up to 2 6 V)
- Permissible propeller diameter - max. 6 inches (15.2 cm)
- It is not allowed to use propellers other than plastic
- Maximum weight - 1 kg.
- Allowed frequencies of RC control devices - 2.4 GHz and 868 MHz.

1.3 Track Specification

- The track on which the preparation for the competition will take place will be located in the building of Franciszek Leja State School in Grodzisko Górne.
- The track on which the GG Aerial competition will take place will be located in the building of the Rzeszów University of Technology.
- Both tracks will be properly fenced off and secured, ensuring safety during preparatory classes and the competition itself.

1.4 The course of the competition

- The competition consists of three successive stages: substantive preparation of competitors - test flights - finals.
- Substantive preparation of competitors and test flights will take place during a meeting with experts held in Franciszek Leja State School in Grodzisko Górne.
- Finals will take place at the Rzeszów University of Technology and will take place as part of the GG Robot Curatorial Competition.

1.5 Safety rules

- Any work performed on the flying drone during the time allocated for it is allowed only in the designated area. It is forbidden to perform any acrobatics during and after the end in a place where it will threaten the safety of bystanders.
- The pilot is completely forbidden to fly the drone outside the designated flight zone, i.e. outside the track or above the safety net line.
- Only judges, organizer, technical team, pilots or assistant pilots collecting drones after landing or preparing for take-off are allowed to enter the track. The track can only be entered after all drones have landed.
- The pilot who flies the drone outside the fence is obliged to immediately turn off the drone.
- A pilot who exhibits unsafe behavior will be disqualified.
- It is strictly forbidden to turn on drones during the race near the competition site.
- The organizer is not responsible for any damage caused by competitors. In the event of a given situation, the perpetrator is obliged to take responsibility for the damage caused.

2 Competition

2.1 Gameboard

Definition 2.1: Gameboard

- **Size** - 3.85m x 3m
- **Circle Diameter** - 50cm

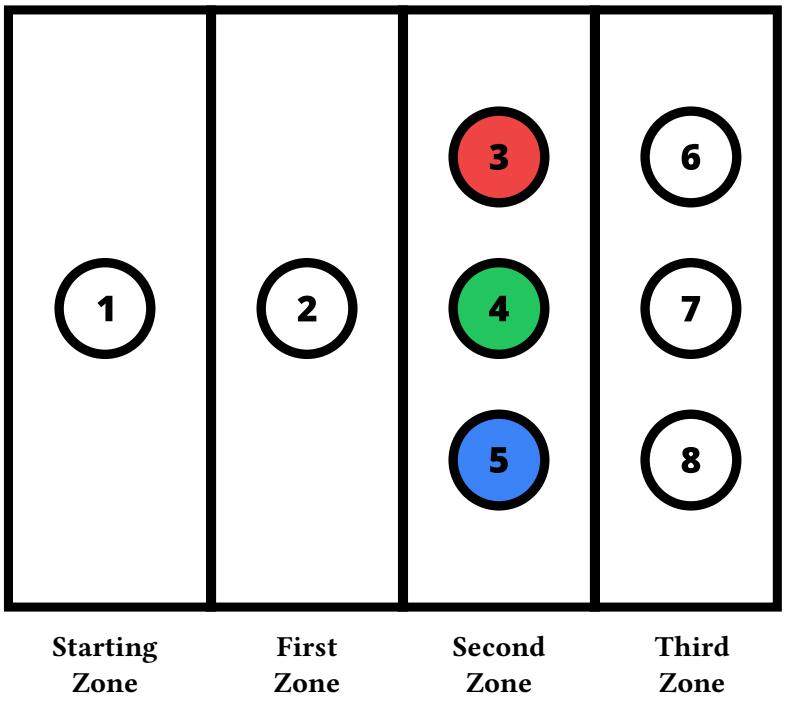

Figure 2.1: Game board with Description

Challenge 2.1: Starting Zone

Starting Zone - The starting zone is at the very beginning of the gameboard. The drone should take off from the starting zone and fly out of the vertical projection of the zone. (Over the lines surrounding the zone)

Points:

Challenge	Points
Takeoff	5
Leave Zone	10

See Figure 2.1 "Starting Zone"

Challenge 2.2: First Zone

First Zone - The drone should land within the circle of the first zone. However, points can also be scored when landing inside the zone itself.

Landing in Circle - To score points for the landing in the circle, it is enough if **one part of the drone is within** the circle.

Landing in Zone - To score the points for landing in the zone, the drone must be **fully within** the zone. (Landing in the circle also counts as landing in the zone!)

Points:

Challenge	Points
Landing in the zone	5
Landing in the circle	5

See Figure 2.1 "First Zone"

Challenge 2.3: Second Zone

Second Zone - The judges will specify in which of the three circles (red, green or blue) the drone should land. The judges will tell the team the color, and the team must type in their program where the drone should land. (For example: using the `input()` function.

Landing in the correct Circle - To score points for the landing in the circle specified by the judges, it is enough if **one part of the drone is within** the circle.

Landing in Zone - To score the points for landing in the zone, the drone must be **fully within** the zone. (Landing in the circle also counts as landing in the zone!)

Points:

Challenge	Points
Landing in the zone	5
Landing in the correct circle	10

See Figure 2.1 "Second Zone"

Challenge 2.4: Third Zone

Third Zone - Here the judges will give the team the numbers "6", "7" and "8" in a specific order. The drone then has to land in the circle in the correct order. For example, if the judges give the numbers: "7", "8" and "6", the drone should first land in the circle "7" then in the circle "8" and then in the circle "6".

Landing in the correct Circle - To score points for the landing in the circles specified by the judges, it is enough if **one part of the drone is within** the circle.

Landing in Zone - To score the points for landing in the zone, the drone must be **fully within** the zone. (Landing in the circle also counts as landing in the zone!)

See Figure 2.1 "Third Zone"

Challenge 2.5: Bonus Points

Bonus 1 - Bonus points can be scored landing in the first zone, then taking off again and then landing in the third zone.

Bonus 2 - Bonus points can be scored when landing in all four zones.

Points:

Challenge	Points
Bonus 1	5
Bonus 2	10

See Figure 2.1 "Third Zone"

3 Scoring Sheet

Challenge	Score	Multiplier	Total
Starting Zone			
Take Off	☐ +5		=_____
Leave Zone	☐ +10	☐ Final Landing Position x2	=_____
First Zone			
Land in Zone	☐ +5		=_____
Land in Target Circle	☐ +10		=_____
Second Zone			
Land in Zone	☐ +5		=_____
Land in correct Target Circle	☐ +10		=_____
Third Zone			
First Target Circle correct	☐ +5		=_____
Second Target Circle correct	☐ +10		=_____
Third Target Circle correct	☐ +20	☐ Take Off and Flip x2	=_____
Bonus Points			
Bonus 1	☐ +5		=_____
Bonus 2	☐ +10		=_____
Total			_____

Signatures:

Team: _____ Judge: _____